What is claimed is:

1. A polyvinyl chloride composition containing a core/shell impact additive, said impact additive comprising:

a) 70 % to 90 % by weight of a crosslinked elastomeric core which is composed:

1) of 20 % to less than 100 % by weight of a nucleus composed of a copolymer (1) of an n-alkyl acrylate, the alkyl group having a carbon number ranging from 5 to 12, of a polyfunctional crosslinking agent possessing unsaturated groups in its molecule, at least one of which is a vinyl group and optionally of a polyfunctional grafting agent possessing unsaturated groups in its molecule, at least one of which is an allyl group, and

2) of more than 0 and not more than 80 % by weight, of a covering composed of a copolymer (II) of n-alkyl acrylate, the alkyl group of which has a carbon number ranging from 4 to 12, and a grafting agent possessing allyl groups, the said covering containing a molar amount of grafting agent ranging from 0.05 % to 2.5 %, said grafting agent having only allyl functional groups, all having the same reactivity and,

b) 30 % to 10 % by weight of a shell grafted onto the said core composed of a polymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, or alternatively of a statistical copolymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, and of an alkyl acrylate, the alkyl group of

which has a carbon number ranging from 1to 8, containing a molar amount of alkyl acrylate ranging from 5 % to 40 %, or alternatively composed of a styrene acrylonitrile copolymer.

2. A composition according to Claim 1, characterized in that the said impact additive comprises from

a) 75% to 85% of a crosslinked elastomeric core,

b) 25% to 15% of a shell grafted onto the said core.

3. A composition according to Claim 1, characterized in that the alkyl group of the n-alkyl acrylate of the copolymer (I) has a carbon number ranging from 5 to 8 and that the alkyl group of the n-alkyl acrylate of the copolymer (II) has a carbon number ranging from 4 to 8.

4. A composition according to Claim 1, characterized in that the alkyl group of the alkyl acrylates of the mixture forming part of the copolymers (I) and/or (II) has a carbon number ranging from 4 to 8.

5. A composition according to Claim 1, characterized in that the crosslinking agent is chosen from derivatives possessing at least two vinyl double bonds of $CH_2=C<$.

6. A composition according to Claim 1, characterized in that the cross linking agent is chosen from derivatives

possessing one or a number of vinyl double bonds and at least one allyl double bond of $CH_2=CH-CH_2-$.

7. a composition according to Claim 1, characterized in that the crosslinking agent is 1,4-butanediol diacrylate.

8. A composition according to Claim 1, characterized in that the crosslinking agent is allyl acrylate or methacrylate.

9. A composition according to Claim 1, characterized in that the grafting agent is chosen from derivatives possessing at least two allyl double bonds of $CH_2=CH-CH_2-$.

10. A composition according to Claim 1, characterized in that the grafting agent is chosen from derivatives possessing one or more allyl double bonds and at least one vinyl double bond.

11. A composition according to Claim 1, characterized in that the grafting agent is diallyl maleate.

12. A composition according to Claim 1, characterized in that the grafting agent is allyl acrylate or methacrylate.

13. A composition according to Claim 1, characterized in that the nucleus of the crosslinked core has a molar amount of crosslinking agent and optionally of grafting agent of between 0.5% and 1.5%.

14. A composition according to Claim 1, characterized in that the covering of the crosslinked core has a molar amount of grafting agent of between 0.5% and 1.5%.

15. A composition according to Claim 1, characterized in that the statistical copolymer of the shell has a molar amount of alkyl acrylate of between 10% and 20%.

16. A composition according to Claim 1, characterized in that the n-alkyl acrylates used to form the copolymer (I) are n-pentyl acrylate, n-hexyl acrylate, n-heptyl acrylate and n-octyl acrylate.

17. A composition according to Claim 1, characterized in that the n-alkyl acylates used to form the copolymer (II) are n-butyl acrylate, n-pentyl acrylate, n-haxyl acrylate, n-heptyl acrylate and n-octyl acrylate.

18. A composition according to Claim 16, characterized in that the n-alkyl acrylate for forming the copolymers (I) and (II) is n-pentyl acrylate.

19. A composition according to Claim 16, characterized in that the n-alkyl acrylate for forming the copolymers (I) and (II) in n-hexyl acrylate.

20. A composition according to Claim 16, characterized in that the n-alkyl acrylate for forming the copolymers (I) and (II) is n-octyl acrylate.

21. A composition according to Claim 16, characterized in that the n-alkyl acrylate for forming the copolymers (I) and (II) is n-octyl acrylate.

22. A composition according to Claim 16, characterized in that the n-alkyl acrylate for forming the copolymer (I) is n-octyl acrylate and that the n-

alkyl acrylate for forming the copolymer (I) is n-octyl acrylate and that the n-alkyl acrylate for forming the copolymer (II) is n-butyl acrylate.

23. A composition according to Claim 1, characterized in that the linear or branched alkyl acrylates constituting the mixture of alkyl acrylates used for forming the copolymers (I) and/or (II) are ethyl acrylate, n-propyl acrylate, n-butyl acrylate, amyl acrylate, 2-methylbutyl acrylate, 2-ethylhexyl acrylate, n-hexyl acrylate, n-octyl acrylate, n-decyl acrylate, n-dodecyl acrylate and 3,5,5-trimethylhexyl acrylate.

24. A composition according to Claim 23, characterized in that use is made of an amount by weight of n-alkyl acrylate at least equal to 10% by weight of the mixture of alkyl acrylates.

25. A composition according to Claim 24, characterized in that use is made of an amount by weight of n-alkyl acrylate of between 20% and 80% by weight of the mixture of alkyl acrylates.

26. A composition according to Claim 1 characterized in the n-alkyl acrylate is n-octyl acrylate.

27. A composition according to Claim 1 characterized in that the alkyl methacrylate used to form the shell is methyl methacrylate.

28. A thermoplastic polymer composition containing a core/shell impact additive, said impact additive comprising:

a) 70 % to 90 % by weight of a crosslinked elastomeric core which is composed;

1) of 20% to less than 100% by weight of a nucleus composed of a copolymer (I) of an n-alkyl acrylate, the alkyl group of which has a carbon number ranging from 5 to 12, and of a polyfuctional crosslinking agent possessing unsaturated groups in its molecule, at least one of which is of a vinyl group, and optionally of a polyfuctional grafting agent possessing unsaturated groups in its molecule, at least one of which is an allyl group,

2) of an amount above 0%, but not more than 80 % by weight, of a covering composed of a copolymer (II) of n-alkyl acrylate, the alkyl group of which has a carbon number ranging from 4 to 12, and a grafting agent possessing allyl groups, the said covering containing a molar amount of grafting agent ranging from 0.05 % to 2.5 %, said grafting agent having only allyl functional groups, all having the same reactivity, and

b) 30 % to 10 % by weight of a shell grafted onto the said core composed of a polymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, or alternatively of a statistical copolymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, and of an alkyl acrylate, the alkyl group of which has a carbon number ranging from 1 to 8, containing a molar amount of alkyl acrylate ranging from 5 % to 40 %, or alternatively composed of a styrene-acrylonitrile copolymer.

29. A composition according to Claim 28, characterized in that the thermoplastic polymer is composed of a least one polycondensate selected from the group consisting of polyesters, poly(butylenes teraphthalate), polyamides, polyesteretheramides, polycarbonates and mixtures thereof.

30. A composition according to Claims 28, characterized in that the thermoplastic polymer is composed of one or a number of polymers selected from the group consisting of poly(alkyl methacrylate)s, particular poly (methyl methacrylate), optionally superchlorinated vinyl chloride homopolymers, copolymers which result from the copolymerization of vinyl chloride with at least one ethylenically unsaturated comonomer and which contain at least 80 % by weight of polymerized vinyl chloride; 1,1-dichloroethylene homopolymer, and 1,1-difluoroethylene homopolymer.

31. A composition according to Claim 30, characterized in that the thermoplastic polymer is a vinyl chloride homopolymer.

32. A composition according to Claim 29, characterized in that the thermoplastic polymer is a poly(butylenes teraphthalate).

33. A composition according to Claim 28 characterized in that the content of impact additive is between 1 part and 30 parts by weight per 100 parts by weight of the thermoplastic polymer used.

34. A composition according to Claim 33, characterized in that the content of impact additive is between 5

parts and 10 parts by weight per 100 parts by weight of the thermoplastic polymer used.

35. (cancelled)

36. A composition according to Claim 30, characterized in that the thermoplastic polymer is a 1,1-difluoroethylene homopolymer.

37. A composition according to Claim 36, wherein the covering constitutes at least 5 % by weight of said core.

38. A composition according to Claim 37, wherein the covering constitutes at least 10% by weight of said core.

39. A composition according to Claim 1 wherein the core does not contain a covering.

40. (cancelled)

41. A composition according to claim 28, wherein said impact additive comprises:

a) 70-90 % by weight of a crosslinked elastomeric core compound of:

1) 20-90 % by weight of a nucleus comprising a copolymer of n-octyl acrylate
and 1,4-butanediol diacrylate, and

2) surrounding said nucleus above 0% but not more than 80% by weight of a covering
comprising a copolymer of n-octyl acrylate and diallyl maleate, and

b) surrounding said core, 30-10 % by weight of a shell grafted onto the said core, said shell composed of a polymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, or

alternatively of a statistical copolymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, and of an 41kyl 4crylate, the alkyl group of which has a carbon number ranging from 1 to 8, containing 2. molar amount of alkyl acrylate ranging from 5 % to 40 %. or alternatively composed of a styrene-acrylonitrile copolymer.

42. A composition according to claim 41, wherein said nucleus is about 90 % by weight of said core and. said covering is about 10 % by weight.

43. A composition according to claim 42, wherein said shell consists essentially of poly(methyl methacrylate)

44. A composition according to claim 41, wherein said impact additive comprises from:

a) 75 % to 85 % of said crosslinked elastomeric core,

b) 25 % to 15 % of said shell grafted onto the said core.

45. A composition according to claim 41, or characterized in that the alkyl methacrylate used to form the shell is methyl methacrylate.

46. A composition according to claim 41, wherein the covering of the crosslinked core has a molar amount of grafting agent of between 0.5 % and 1.5 %.

47. A composition according to claim 1, wherein a) 2) is present in an amount more than 0% by weight.

48. (previously presented) A composition according to claim 1, wherein the composition contains a major amount of polyvinyl chloride and a minor amount of said impact additive.

Claims 49-70 (cancelled)

71. A thermoplastic polymer composition containing a core/shell impact additive, said impact additive comprising:

a) 70 % to 90 % by weight of a crosslinked elastomeric core which is composed:

1) of 20 % to less than 100 % by weight of a nucleus composed of a copolymer (I) of

- an n-alkyl acrylate, the alkyl group having a carbon number ranging from 5 to 12,
- a polyfunctional crosslinking agent possessing unsaturated groups in its molecule, at least one of which is a vinyl group, and
- diallyl maleate as a grafting agent, and

2) of more than above 0% but not more than 80 % by weight of a covering composed of a copolymer (II) of

- the n-alkyl acrylate of copolymer (I)
- the polyfunctional crosslinking agent of copolymer (I) and
- diallyl maleate as a grafting agent in a molar amount from 0.05 % to 2.5 % of copolymer (II)

wherein said core is produced by simultaneously introducing the polyfunctional crosslinking agent and the diallyl maleate into the reaction mixture and the production

of the covering is carried out at a temperature greater than that used for the preparation of the nucleus, and

b) 30 % to 10 % by weight of a shell grafted onto the said core composed of a polymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, or alternatively of a statistical copolymer of an alkyl methacrylate, the alkyl group of which has a carbon number ranging from 1 to 4, and of an alkyl acrylate, the alkyl group of which has a carbon number ranging from 1to 8, containing a molar amount of alkyl acrylate ranging from 5 % to 40 %, or alternatively composed of a styrene-acrylonitrile copolymer.